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1 # R code 3
2
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5 # DATA? TA-DA!
6 # Data Viz Workshop 2019-02-20
7 # CA 260 - 4:00 - 6:00 PM
8 # ALL CODE BELOW PROVIDED "AS IS"
9
10 # import dataset text file: breCan.txt (it's a comma separated value file (CSV) so extension could
... have been .csv)
11 # this is the same dataset used for the R script code_2.R
12
13
14 # plot entire file matrix
15 plot(breCan)
16
17 # plot only a specific range
18 plot(breCan[1:6])
19
20 # SCATTERPLOT WITH TWO VARIABLES
21 # on x-axis: mammogram rate age 40 in 2014)
22 # on y-axis: mortality rate 2011-2015)
23 # *****
24 # *****
25
26 # zoom in on white columns
27 plot(breCan[7:9])
28
29 # zoom in on black columns
30 plot(breCan[4:6])
31
32 # plot non-hispanic white female first
33 plot(breCan$nhWhite_mam40_14,
34       breCan$nhWhite_mort11_15)
35
36 # then plot non-hispanic black female
37 plot(breCan$nhBlack_mam40_14,
38       breCan$nhBlack_mort11_15)
39
40 # both plots display as two similar rectangles filling the plot pane
41 # but notice that the range of the axes (especially mortality) is quite different between the two
... graphs (higher values in black)
42 # visually though, this difference is not very noticeable because the rectangles look the same
43
44 # PLOT WITH SAME X AND Y RANGES FOR BOTH PLOTS
45 # *****
46 # *****
47 # next we plot the same two graphs but specify the range of the axes to be the same using the max
... values available and extend a little bit to round numbers
48 # this is done using the xlim and ylim lines
49 # note that final paranthesis shifts to the end and a comma is added after the second line (Y
... argument)
50
```

```
51 # plot non-hispanic white first
52 plot(breCan$nhWhite_mam40_14,
53       breCan$nhWhite_mort11_15,
54       xlim=c(50,90),
55       ylim=c(15,35)
56 )
57
58
59 # then plot non-hispanic black
60 plot(breCan$nhBlack_mam40_14,
61       breCan$nhBlack_mort11_15,
62       xlim=c(50,90),
63       ylim=c(15,35)
64 )
65
66 # toggle between the two plots in the plot pane (forward and backward arrows)
67 # to see how switching from white to black, the range of mammogram expands horizontally; but most
... noticeably, all states jump up to a much higher mortality rate
68
69
70 # PLOT AGAIN AND ADD NAMES OF STATES
71 # *****
72 # *****
73 # plot again both graphs, but add names of states
74 # remember to add a comma after the ylim line and retain the last paranthesis
75
76 # plot non-hispanic white with state names
77 plot(breCan$nhWhite_mam40_14,
78       breCan$nhWhite_mort11_15,
79       xlim=c(50,90),
80       ylim=c(15,35),
81       text(breCan$nhWhite_mam40_14,
82            breCan$nhWhite_mort11_15,
83            breCan$state,
84            cex=0.5)
85 )
86
87 # plot non-hispanic black with state names
88 plot(breCan$nhBlack_mam40_14,
89       breCan$nhBlack_mort11_15,
90       xlim=c(50,90),
91       ylim=c(15,35),
92       text(breCan$nhBlack_mam40_14,
93            breCan$nhBlack_mort11_15,
94            breCan$state,
95            cex=0.5)
96 )
97
98
99 # NEW PLOT: MORTALITY ON BOTH AXES
100 # *****
101 # *****
102 # plot white mortality on x axis (horiz.)
103 # black mortality on y axis (vert)
```

```
104 # include state names -- make sure to use the same column names for the x and y location of the text
105
106 # plot black and white mortality rate
107 plot(breCan$nhWhite_mort11_15,
108       breCan$nhBlack_mort11_15)
109
110
111
112 # plot with x and y range the same (15,35)
113 # *****
114 # *****
115 # plot again but define same length for x and y axes mortality range (15,35 -- round numbers)
116 # add names
117 plot(breCan$nhWhite_mort11_15,
118       breCan$nhBlack_mort11_15,
119       xlim=c(15,35),
120       ylim=c(15,35),
121       text(breCan$nhWhite_mort11_15,
122            breCan$nhBlack_mort11_15,
123            breCan$state,
124            cex=0.5)
125 )
126
127 # export to pdf but make pdf size a square (same width & height)
128 # this way the plot will be a perfect square, highlighting the disparity
129
130
131 # *****
132 # *****
133 # add a title, subtitle, and the grid lines
134
135 plot(breCan$nhWhite_mort11_15,
136       breCan$nhBlack_mort11_15,
137       xlim=c(15,35),
138       ylim=c(15,35),
139       main="Disparity in black and white breast cancer mortality 2011-2015",
140       text(breCan$nhWhite_mort11_15,
141            breCan$nhBlack_mort11_15,
142            breCan$state,
143            cex=0.5)
144 )
145
146 # add some grid lines ("dotted" or "solid") to the plot
147 # for details, see https://stat.ethz.ch/R-manual/R-devel/library/graphics/html/grid.htm
148 grid(nx = NULL,
149       ny = NULL,
150       col = "lightgray",
151       lty = "solid",
152       lwd = par("lwd"),
153       equilogs = TRUE)
154
155 # export to PDF; with aspect ratio 1:1
156
157
```

```
158 # PLOT RATIOS
159 # *****
160 # *****
161 # plot b/w incidence ratios (proportion of black to white) on x axis
162 # plot b/w mortality ratios (proportion of black to white) on y axis
163
164 # this will give yet another perspective
165 # useful? you decide
166
167 plot(breCan$bwInc_ratio10_14,
168      breCan$bwMort_ratio11_15,
169      xlim=c(0.5,1.8),
170      ylim=c(0.5,1.8),
171      text(breCan$bwInc_ratio10_14,
172           breCan$bwMort_ratio11_15,
173           breCan$state,
174           cex=0.5)
175 )
176
177 # ADJUST RANGES
178 # *****
179 # *****
180 # plot again but adjust the ranges to zoom in on the scatter area
181
182 plot(breCan$bwInc_ratio10_14,
183      breCan$bwMort_ratio11_15,
184      xlim=c(0.7,1.1),
185      ylim=c(1,1.7),
186      text(breCan$bwInc_ratio10_14,
187           breCan$bwMort_ratio11_15,
188           breCan$state,
189           cex=0.5)
190 )
191
192 # *****
193 # *****
194 # add a title, subtitle, and the grid lines
195
196
197 plot(breCan$bwInc_ratio10_14,
198      breCan$bwMort_ratio11_15,
199      xlim=c(0.7,1.1),
200      ylim=c(1,1.7),
201      main="B:W disparity: mort. ratio 2011-15 Y axis; incidence ratio 2010-14 X axis",
202      text(breCan$bwInc_ratio10_14,
203           breCan$bwMort_ratio11_15,
204           breCan$state,
205           cex=0.5)
206 )
207
208 # add some grid lines ("dotted" or "solid") to the plot
209 # for details, see https://stat.ethz.ch/R-manual/R-devel/library/graphics/html/grid.htm
210 grid(nx = NULL,
211      ny = NULL,
```

```
212     col = "lightgray",
213     lty = "solid",
214     lwd = par("lwd"),
215     equilog = TRUE)
216
217 # export to PDF; play with aspect ratio by specifying height and width of plot
218
219
```